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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/881,746	06/18/2001	Ivan Bella	37005-171895	8757

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EXAMINER	
BELL, MELTIN	

ART UNIT	PAPER NUMBER
2121	

DATE MAILED: 12/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/881,746	BELLA ET AL.	
	Examiner	Art Unit	
	Meltin Bell	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) *6,15 and 16* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-14 and 17-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This action is responsive to application **09/881,746** filed 06/18/2001 as well as the Appeal Brief filed 9/13/04. Claims 1-5, 7-14 and 17-23 filed by the applicant have been entered and examined. Claims 6 and 15-16 are canceled. An action on the merits of claims 1-5, 7-14 and 17-23 appears below. Prosecution on the merits is reopened.

Priority

Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged for provisional application number 60/212,050 filed **6/16/00**.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the Office presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under

37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Office to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-5, 7-10, 12, 14, 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Amado* USPN 5,701,400 "Method and apparatus for applying if-then-else rules to data sets in a relational data base and generating from the results of application of said rules a database of diagnostics linked to said data sets to aid executive analysis of financial data" (December 23, 1997) in view of *Lin et al* "Dempster-Shafer Reasoning for Medical Image Recognition" (November 1991) and in further view of *Ng et al* "Consensus in a multi-expert system" (January 1990).

Regarding claim 1:

Amado teaches,

- a blackboard (column 5, lines 7-31) comprising
- a plurality of experts (column 5, lines 51-57), and
- data comprising original input data and data created by processing of any of said plurality of experts (column 24, lines 14-23), and
- a controller operative to control said experts (column 77, lines 20-57);
- a relations subsystem (column 96, lines 52-61), coupled to said controller
- a model (column 10, lines 27-34), coupled to said controller, comprising probabilities (column 13, lines 63-67; column 14, lines 1-8), wherein said model comprises a set of rules deduced (column 2, lines 56-66) from a learning system (column 21, lines 51-55),

said learning system comprising truth (column 22, lines 25-28) data files (column 28, lines 18-54; column 54, lines 1-46) for deducing probabilities (column 13, lines 63-67; column 14, lines 1-8), a learning system controller (column 8, lines 45-67; column 9, lines 1-4) and a statistics space controlled by said learning system controller (column 9, lines 21-32), wherein said set of rules describes how different classes recognized by said learning system are related to each other (column 17, lines 16-59)

However, *Amado* doesn't explicitly teach a belief model, coupled to said controller, comprising a set of beliefs and probabilities associated with each belief of said set of beliefs, wherein said belief model comprises a set of rules deduced from a learning system, said learning system comprising truth data files for deducing said set of beliefs, probabilities and shadow objects, a learning system controller and a statistics space controlled by said learning system controller, wherein said set of rules describes how different classes recognized by said learning system are related to each other spatially and physically or a belief network, coupled to said controller while *Lin et al* teaches,

- a belief model, coupled to said controller (page 484, section 4.2), comprising a set of beliefs and probabilities associated with each belief of said set of beliefs (page 480, section 2, paragraph 2), wherein said belief model comprises a set of rules deduced from a learning system (page 481, section 3.3, paragraphs 1-2 and page 482, paragraph 1), said learning system deducing said set of beliefs, probabilities and shadow objects (page 482, section 4.1), wherein said set of rules describes how different classes (page 486, Figs. 3-4) recognized by said learning system are related to each other (page 482, section 4, paragraphs 1-2) spatially (page 483, section 4.1.3,

Spatial relationship bullet) and physically (page 483, section 4.1.3, Initial Belief Assignment bullet; Figs. 1-2)

Ng et al teaches,

- a belief network, coupled to said controller (page 353, paragraph 3 and Fig. 1)

Motivation – The portions of the claimed system would have been a highly desirable feature in this art for avoiding exhaustive enumeration of evidence combination (*Lin et al*, p. 484, section 6, paragraph 2) and improving system performance (*Ng et al*, page 356, paragraph 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Amado* as taught by *Lin et al* and *Ng et al* for the purpose of avoiding exhaustive enumeration of evidence combination and improving system performance.

Regarding claim 2:

The rejection of claim 2 is similar to that for claim 1 as recited above since the stated limitations of the claim are set forth in the references. Claim 2's limitations difference is taught in *Lin et al*:

- region identification experts and a closed curve recognizer (p. 482, section 4, paragraph 2)

Regarding claim 3:

The rejection of claim 3 is the same as that for claim 1 as recited above since the stated limitations of the claim are set forth in the references.

Regarding claim 4:

The rejection of claim 4 is the same as that for claim 1 as recited above since the stated limitations of the claim are set forth in the references.

Regarding claim 5:

The rejection of claim 5 is the same as that for claim 1 as recited above since the stated limitations of the claim are set forth in the references.

Regarding claim 7:

The rejection of claim 7 is similar to that for claim 1 as recited above since the stated limitations of the claim are set forth in the references. Claim 7's limitations difference is taught in *Lin et al*:

- said belief model is operative to predict existence of a shadow object in an image even if there are no specifc experts capable of recognizing said shadow object (p. 482, section 4.1, paragraph 1)

Regarding claim 8:

The rejection of claim 8 is the same as that for claim 1 as recited above since the stated limitations of the claim are set forth in the references.

Regarding claim 9:

The rejection of claim 9 is the same as that for claim 1 as recited above since the stated limitations of the claim are set forth in the references.

Regarding claim 10:

The rejection of claim 10 is similar to that for claim 1 as recited above since the stated limitations of the claim are set forth in the references. Claim 10's limitations difference is taught in *Lin et al*:

- said relations subsystem is operative to determine spatial relations (p. 483, section 4.1.3, Spatial relationship bullet)

Regarding claim 14:

The rejection of claim 14 is the same as that for claim 1 as recited above since the stated limitations of the claim are set forth in the references.

Regarding claim 18:

The rejection of claim 8 is similar to that for claim 1 as recited above since the stated limitations of the claim are set forth in the references. Claim 8's limitations difference is taught in *Ng et al*:

- a Bayesian Network (page 351, section 2, paragraph 2)

Regarding claim 19:

The rejection of claim 19 is similar to that for claim 1 as recited above since the stated limitations of the claim are set forth in the references. Claim 19's limitations difference is taught in *Amado:*

- rules operative to be used to make a determination whether or not one of said experts should be executed by search (column 86, lines 39-66) of said belief model to determine whether an adaptable threshold of supporting evidence (column 12, lines 47-

54) has been exceeded for an execution supportability rule that evaluates outputs of currently executing experts

Regarding claim 20:

The rejection of claim 20 is similar to that for claim 1 as recited above since the stated limitations of the claim are set forth in the references. Claim 20's limitations difference is taught in *Lin et al*:

- said belief model is operative to model expected object associations (page 484, section 4.2), to weigh relative object positions (page 483, section 4.1.3, Initial Belief Assignment bullet; Figs. 1,6), and to tie a probability or belief value to those associations

Regarding claim 21:

The rejection of claim 21 is similar to that for claim 1 as recited above since the stated limitations of the claim are set forth in the references. Claim 21's limitations difference is taught in *Ng et al*:

- said belief network is operative to combine the belief model with hypotheses generated by said experts to form belief values for hypothesized objects (page 356, left column, paragraphs 2-3)

Regarding claim 22:

Amado teaches,

- identifying classes of objects (column 12, lines 16-29) specified by a user (column 12, lines 39-44) using a plurality of cooperative (column 10, lines 40-54) object recognition (column 16, lines 7-13) experts (column 77, lines 20-57);

- achieving (column 36, lines 60-67; column 37 lines 1-3) higher accuracy (column 17, lines 16-39) from using in parallel (column 8, lines 60-67; column 9, lines 1-4) said plurality of cooperative object recognition experts than is achievable using in serial said plurality of cooperative object recognition experts;

- supporting scaleability (column 12, lines 39-46) of performance (column 9, lines 21-32) including supporting multiple processors (Fig. 1);

- specifying specified associations (column 12, lines 16-29) among said objects,

- learning learned (column 12, lines 47-54) associations (column 13, lines 5-17) among said objects,

- representing said specified and learned associations (column 14, lines 19-22), and

- deducing a set of rules (column 2, lines 56-66) from a learning system (column 21, lines 51-55), said learning system comprising truth (column 22, lines 25-28) data files (column 28, lines 18-54; column 54, lines 1-46) for deducing probabilities (column 13, lines 63-67; column 14, lines 1-8), a statistics (column 9, lines 21-32) space (column 10, lines 4-10)

- a learning system controller (column 8, lines 45-67; column 9, lines 1-4) and a statistics space controlled by said learning system controller (column 9, lines 21-32)

However, *Amado* doesn't explicitly teach developing a belief model by deducing a set of rules from a learning system, said learning system comprising truth data files for deducing beliefs, probabilities and shadow objects, a learning system controller and a statistics space controlled by said learning system controller, said set of rules describing

how different classes recognized by said learning system are related to each other spatially and physically while *Lin et al* teaches,

- developing a belief model (p. 480, section 2, paragraph 2), by deducing from a learning system (p. 480, section 1, paragraph 1) beliefs and shadow objects (p. 482, section 4.1), said set of rules describing how different classes (page 486, Figs. 3-4) recognized by said learning system are related to each other (page 482, section 4, paragraph 2) spatially (page 483, section 4.1.3, Spatial relationship bullet) and physically (Figs. 1-2)

- deducing said shadow objects (p. 482, section 4.1) from said belief model

Ng et al teaches,

- forming a belief network (page 353, paragraph 3 and Fig. 1) wherein said belief network is at least one of a Bayesian Network and a Dempster Shafer Network (page 356, paragraph 2); and

Motivation – The portions of the claimed system would have been a highly desirable feature in this art for avoiding exhaustive enumeration of evidence combination (*Lin et al*, p. 484, section 6, paragraph 2) and improving system performance (*Ng et al*, page 356, paragraph 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Amado* as taught by *Lin et al* and *Ng et al* for the purpose of avoiding exhaustive enumeration of evidence combination, enhancing robustness/precision and improving system performance.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Amado* in view of *Lin et al* in view of *Ng et al* and in further view of *Papadias et al* "Special issue on spatial database systems: Qualitative representation of spatial knowledge in two-dimensional space" (October 1994).

Regarding claim 11:

Amado teaches,

- a blackboard (column 5, lines 7-31) comprising
- a plurality of experts (column 5, lines 51-57), and
- data comprising original input data and data created by processing of any of said plurality of experts (column 24, lines 14-23), and
- a controller operative to control said experts (column 77, lines 20-57);
- a relations subsystem (column 96, lines 52-61), coupled to said controller
- a model (column 10, lines 27-34), coupled to said controller, comprising probabilities (column 13, lines 63-67; column 14, lines 1-8), wherein said model comprises a set of rules deduced (column 2, lines 56-66) from a learning system (column 21, lines 51-55), said learning system comprising truth (column 22, lines 25-28) data files (column 28, lines 18-54; column 54, lines 1-46) for deducing probabilities (column 13, lines 63-67; column 14, lines 1-8), a learning system controller (column 8, lines 45-67; column 9, lines 1-4) and a statistics space controlled by said learning system controller (column 9, lines 21-32), wherein said set of rules describes how different classes recognized by said learning system are related to each other (column 17, lines 16-59)

However, *Amado* doesn't explicitly teach a belief model, coupled to said controller, comprising a set of beliefs and probabilities associated with each belief of said set of beliefs, wherein said belief model comprises a set of rules deduced from a learning system, said learning system comprising truth data files for deducing said set of beliefs, probabilities and shadow objects, a learning system controller and a statistics space controlled by said learning system controller, wherein said set of rules describes how different classes recognized by said learning system are related to each other spatially and physically, a belief network, coupled to said controller or said spatial relations include types comprising at least one of: a north type, a south type, an east type, a west type, a contains type, a contained by type, and an adjacent to type while *Lin et al* teaches,

- a belief model, coupled to said controller (page 484, section 4.2), comprising a set of beliefs and probabilities associated with each belief of said set of beliefs (page 480, section 2, paragraph 2), wherein said belief model comprises a set of rules deduced from a learning system (page 481, section 3.3, paragraphs 1-2 and page 482, paragraph 1), said learning system deducing said set of beliefs, probabilities and shadow objects (page 482, section 4.1), wherein said set of rules describes how different classes (page 486, Figs. 3-4) recognized by said learning system are related to each other (page 482, section 4, paragraphs 1-2) spatially (page 483, section 4.1.3, Spatial relationship bullet) and physically (page 483, section 4.1.3, Initial Belief Assignment bullet; Figs. 1-2)

- said relations subsystem is operative to determine spatial relations (p. 483, section 4.1.3, Spatial relationship bullet)

Ng et al teaches,

- a belief network, coupled to said controller (page 353, paragraph 3 and Fig. 1)

Papadias et al teaches,

- said spatial relations include types comprising at least one of: a north type (page 480, paragraph 1; Figs. 7, 12, 14), a south type, an east type, a west type, a contains type, a contained by type, and an adjacent to type

Motivation – The portions of the claimed system would have been a highly desirable feature in this art for avoiding exhaustive enumeration of evidence combination (*Lin et al*, p. 484, section 6, paragraph 2), improving system performance (*Ng et al*, page 356, paragraph 4) and dealing with extended objects (*Papadias et al*, page 499, paragraph 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Amado* as taught by *Lin et al, Ng et al* and *Papadias et al* for the purpose of avoiding exhaustive enumeration of evidence combination, improving system performance and dealing with extended objects.

Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Amado* in view of *Lin et al* in view of *Ng et al* and in further view of *Wang et al* "Logical design for temporal databases with multiple granularities" (June 1997).

Regarding claim 12:

Amado teaches,

- a blackboard (column 5, lines 7-31) comprising

- a plurality of experts (column 5, lines 51-57), and

- data comprising original input data and data created by processing of any of said plurality of experts (column 24, lines 14-23), and

- a controller operative to control said experts (column 77, lines 20-57);

- a relations subsystem (column 96, lines 52-61), coupled to said controller

- a model (column 10, lines 27-34), coupled to said controller, comprising probabilities (column 13, lines 63-67; column 14, lines 1-8), wherein said model comprises a set of rules deduced (column 2, lines 56-66) from a learning system (column 21, lines 51-55), said learning system comprising truth (column 22, lines 25-28) data files (column 28, lines 18-54; column 54, lines 1-46) for deducing probabilities (column 13, lines 63-67; column 14, lines 1-8), a learning system controller (column 8, lines 45-67; column 9, lines 1-4) and a statistics space controlled by said learning system controller (column 9, lines 21-32), wherein said set of rules describes how different classes recognized by said learning system are related to each other (column 17, lines 16-59)

However, *Amado* doesn't explicitly teach a belief model, coupled to said controller, comprising a set of beliefs and probabilities associated with each belief of said set of beliefs, wherein said belief model comprises a set of rules deduced from a learning system, said learning system comprising truth data files for deducing said set of beliefs, probabilities and shadow objects, a learning system controller and a statistics space

controlled by said learning system controller, wherein said set of rules describes how different classes recognized by said learning system are related to each other spatially and physically, a belief network, coupled to said controller or said relations subsystem is operative to determine temporal relations while *Lin et al* teaches,

- a belief model, coupled to said controller (page 484, section 4.2), comprising a set of beliefs and probabilities associated with each belief of said set of beliefs (page 480, section 2, paragraph 2), wherein said belief model comprises a set of rules deduced from a learning system (page 481, section 3.3, paragraphs 1-2 and page 482, paragraph 1), said learning system deducing said set of beliefs, probabilities and shadow objects (page 482, section 4.1), wherein said set of rules describes how different classes (page 486, Figs. 3-4) recognized by said learning system are related to each other (page 482, section 4, paragraphs 1-2) spatially (page 483, section 4.1.3, Spatial relationship bullet) and physically (page 483, section 4.1.3, Initial Belief Assignment bullet; Figs. 1-2)

Ng et al teaches,

- a belief network, coupled to said controller (page 353, paragraph 3 and Fig. 1)

Wang et al teaches,

- said relations subsystem is operative to determine temporal relations (page 120, section 1.3, paragraph 1)

Motivation – The portions of the claimed system would have been a highly desirable feature in this art for avoiding exhaustive enumeration of evidence combination (*Lin et al*, p. 484, section 6, paragraph 2), improving system performance (*Ng et al*, page 356,

paragraph 4) and taking into account multiple granularities while always preserving temporal functional dependencies (*Wang et al*, page 120, section 1.3, paragraph 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Amado* as taught by *Lin et al, Ng et al* and *Wang et al* for the purpose of avoiding exhaustive enumeration of evidence combination, improving system performance and preserving temporal functional dependencies.

Regarding claim 13:

The rejection of claim 13 is similar to that for claim 12 as recited above since the stated limitations of the claim are set forth in the references. Claim 13's limitations difference is taught in *Wang et al*:

- said temporal relations include types comprising at least one of: a before type, an after type (page 147, paragraph 4), and an exists with type

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Amado* in view of *Lin et al* in view of *Ng et al* and in further view of *Golan* USPN 5,974,549 "Security monitor" (October 26, 1999).

Regarding claim 17:

Amado teaches,

- a blackboard (column 5, lines 7-31) comprising
- a plurality of experts (column 5, lines 51-57), and
- data comprising original input data and data created by processing of any of said plurality of experts (column 24, lines 14-23), and

- a controller operative to control said experts (column 77, lines 20-57);

- a relations subsystem (column 96, lines 52-61), coupled to said controller

- a model (column 10, lines 27-34), coupled to said controller, comprising probabilities (column 13, lines 63-67; column 14, lines 1-8), wherein said model comprises a set of rules deduced (column 2, lines 56-66) from a learning system (column 21, lines 51-55), said learning system comprising truth (column 22, lines 25-28) data files (column 28, lines 18-54; column 54, lines 1-46) for deducing probabilities (column 13, lines 63-67; column 14, lines 1-8), a learning system controller (column 8, lines 45-67; column 9, lines 1-4) and a statistics space controlled by said learning system controller (column 9, lines 21-32), wherein said set of rules describes how different classes recognized by said learning system are related to each other (column 17, lines 16-59)

- said learning system (column 21, lines 51-55) is operative to assist (column 65, lines 34-40) in integrating a new expert, said new expert being adapted (column 8, lines 56-67; column 9, lines 1-4) to create, encapsulate (column 12, lines 43-46) and compile (column 25, lines 1-20) said new expert; to add a function (column 67, lines 60-67) to said blackboard (column 5, lines 7-31); if output of said new expert is new, to add the output (column 63, lines 25-32) to said belief model (column 11, lines 16-22); and to add a blackboard rule (column 10, lines 55-65) to control when said new expert is to be executed (column 11, lines 32-47)

However, *Amado* doesn't explicitly teach a belief model, coupled to said controller, comprising a set of beliefs and probabilities associated with each belief of said set of beliefs, wherein said belief model comprises a set of rules deduced from a learning

system, said learning system comprising truth data files for deducing said set of beliefs, probabilities and shadow objects, a learning system controller and a statistics space controlled by said learning system controller, wherein said set of rules describes how different classes recognized by said learning system are related to each other spatially and physically, a belief network, coupled to said controller or to add a stub function to said blackboard while *Lin et al* teaches,

- a belief model, coupled to said controller (page 484, section 4.2), comprising a set of beliefs and probabilities associated with each belief of said set of beliefs (page 480, section 2, paragraph 2), wherein said belief model comprises a set of rules deduced from a learning system (page 481, section 3.3, paragraphs 1-2 and page 482, paragraph 1), said learning system deducing said set of beliefs, probabilities and shadow objects (page 482, section 4.1), wherein said set of rules describes how different classes (page 486, Figs. 3-4) recognized by said learning system are related to each other (page 482, section 4, paragraphs 1-2) spatially (page 483, section 4.1.3, Spatial relationship bullet) and physically (page 483, section 4.1.3, Initial Belief Assignment bullet; Figs. 1-2)

Ng et al teaches,

- a belief network, coupled to said controller (page 353, paragraph 3 and Fig. 1)

Golan teaches,

- stub functions (column 12, lines 10-13)

Motivation – The portions of the claimed system would have been a highly desirable feature in this art for avoiding exhaustive enumeration of evidence combination (*Lin et*

al, p. 484, section 6, paragraph 2), improving system performance (*Ng et al*, page 356, paragraph 4) and redirecting function calls (*Golan*, column 3, lines 20-33). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Amado* as taught by *Lin et al, Ng et al* and *Golan* for the purpose of avoiding exhaustive enumeration of evidence combination, improving system performance and redirecting function calls.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Amado* in view of *Golan* in further view of *Lin et al*.

Regarding claim 23:

Amado teaches,

- creating an expert (column 25, lines 1-20);

- encapsulating said expert (column 12, lines 43-46);

- compiling said expert (column 10, lines 66-67; column 11, lines 1-9);

- adding a function to a blackboard (column 67, lines 60-67) ',

- determining if output of said expert is new and if new, then adding the output's (column 63, lines 25-32) class (Fig. 18; column 40, lines 16-26; column 97, lines 63-67; column 98, lines 1-15) to said blackboard (column 5, lines 7-31), and updating a model (column 10, lines 27-34) by providing truth (column 22, lines 25-28) data file (column 44, lines 11-19) data to a learning system (column 21, lines 51-55)

- a learning system controller (column 8, lines 45-67; column 9, lines 1-4) and a statistics space controlled by said learning system controller (column 9, lines 21-32)

- creating a rule (column 10, lines 55-65) to control when said new expert is to be executed (column 11, lines 32-47) when supporting evidence (column 12, lines 47-54) is found to exceed an adaptable (column 8, lines 56-67; column 9, lines 1-4) threshold;

However, *Amado* doesn't explicitly teach adding a stub function to a blackboard, updating a belief model, said learning system comprising truth data files for deducing beliefs, probabilities and shadow objects or deducing a set of rules from said learning system, said set of rules describing how different classes recognized by said learning system are related to each other spatially and physically while *Golan* teaches,

- a stub function (column 12, lines 10-13)

Lin et al teaches,

- updating a belief model (page 480, section 2, paragraph 2)

- said learning system comprising truth data files (p. 481, section 3.2) for deducing beliefs, probabilities and shadow objects (p. 482, section 4.1)

- deducing a set of rules from said learning system, said set of rules describing how different classes (Figs. 3-4) recognized by said learning system are related to each other (p. 482, section 4, paragraph 2) spatially (p. 483, section 4.1.3, Spatial relationship bullet) and physically (Figs. 1-2)

Motivation – The portions of the claimed system would have been a highly desirable feature in this art for avoiding exhaustive enumeration of evidence combination (*Lin et al*, p. 484, section 6, paragraph 2) and redirecting function calls (*Golan*, column 3, lines 20-33). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Amado* as taught by *Golan* and *Lin et al* for the

purpose of avoiding exhaustive enumeration of evidence combination and redirecting function calls.

RESPONSE TO APPLICANTS' AMENDMENT REMARKS

Claim Objections

Claims 22 and 23 are objected to for minor informalities:

Regarding claim 22:

- 'A method' would read well as 'A computer-implemented method'

Regarding claim 23:

- 'A method' would read well as 'A computer-implemented method'

Appropriate correction is required.

Claim Rejections - 35 USC § 102

Applicant(s) argue(s) that Lin "Dempster-Shafer Reasoning for Medical Image Recognition" fails to teach or suggest at least three elements of Group I (claims 1-5, 7-14 and 17-21) (Appeal Brief VIII. ARGUMENTS, Issue 1, page 4, subsection A, paragraph 1): plurality of experts (Appeal Brief VIII. ARGUMENTS, Issue 1, page 4, subsection A, paragraph 2), rules deduced from a learning system (Appeal Brief VIII. ARGUMENTS, Issue 1, page 5, subsection A, paragraph 3) and truth data files for deducing (Appeal Brief VIII. ARGUMENTS, Issue 1, page 6, subsection A, paragraph 1). Applicant's arguments have been fully considered, but are moot in view of the new

grounds of rejection given above and the necessary withdrawal of the 35 USC 102(b) and 103(a) rejections. However, Amado USPN 5,701,400 column 5, lines 51-57 is cited for teaching the plurality of experts while column 2, lines 56-66 and column 21, lines 51-55 teach the rules deduced from a learning system and column 22, lines 25-28 and column 28, lines 18-54 and column 54, lines 1-46 teach truth data files for deducing.

Applicant(s) argue(s) that Lin fails to teach or suggest at least three elements of Group 2 (claim 22): shadow objects, deducing a set of rules from a learning system, truth data files for deducing (Appeal Brief VIII. ARGUMENTS, page 6, Group II, paragraphs 1-2), deducing said shadow objects from said belief model (Appeal Brief VIII. ARGUMENTS, page 6, Group II, paragraph 3). Applicant's arguments have been fully considered, but are moot in view of the new grounds of rejection given above and the necessary withdrawal of the 35 USC 102(b) and 103(a) rejections. However, Lin page 482, section 4.1 is cited for teaching shadow objects while Amado column 2, lines 56-66 and column 21, lines 51-55 teach deducing a set of rules from a learning system and column 22, lines 25-28 and column 28, lines 18-54 column 54, lines 1-46 teach truth data files for deducing. Further, Lin page 484, section 6, paragraph 2 provides avoiding exhaustive enumeration of evidence combination as the purpose and motivation for modifying Amado as taught by Lin.

Applicant(s) argue(s) that Lin fails to teach elements of Group 3 (claim 23): creating, encapsulating and compiling an expert, deducing, truth data files for deducing shadow objects (Appeal Brief VIII. ARGUMENTS, page 7, Group III, paragraphs 2-3), determining if the output is new (Appeal Brief VIII. ARGUMENTS, page 6, Group II,

paragraph 3) and adding the new output's class to said blackboard (Appeal Brief VIII. ARGUMENTS, page 8, Group II, paragraph 1). Applicant's arguments have been fully considered, but are moot in view of the new grounds of rejection given above and the necessary withdrawal of the 35 USC 102(b) and 103(a) rejections. However, Amado column 25, lines 1-20, column 12, lines 43-46, column 10, lines 66-67 and column 11, lines 1-9 are cited for teaching creating, encapsulating and compiling an expert while column 63, lines 25-32, Fig. 18, column 40, lines 16-26 column 97, lines 63-67 column 98, lines 1-15 teaches determining if output of said expert is new then and adding the new output's class to said blackboard, column 22, lines 25-28 and column 28, lines 18-54 column 54, lines 1-46 teach truth data files for deducing and Lin page 481, section 3.2 and p. 482, section 4.1 teach truth data files for deducing shadow objects and deducing. Further, Lin page 484, section 6, paragraph 2 provides avoiding exhaustive enumeration of evidence combination as the purpose and motivation for modifying Amado as taught by Lin.

Claim Rejections - 35 USC § 103

Applicant(s) argue(s) that Lin, Kortge 6,058,206 and Alden USPN 5,418,888 fail to teach or suggest at least two elements of Group I (claims 1-5, 7-14 and 17-21) (Appeal Brief VIII. ARGUMENTS, Issue 2, page 8, subsection A, paragraph 1): a blackboard system comprising a plurality of experts (Appeal Brief VIII. ARGUMENTS, Issue 2, page 8, subsection A, paragraph 4) and a belief model comprises a set of rules deduced from a learning system (Appeal Brief VIII. ARGUMENTS, Issue 2, page 8,

subsection A, paragraph 5). Applicant's arguments have been fully considered, but are moot in view of the new grounds of rejection given above and the necessary withdrawal of the 35 USC 102(b) and 103(a) rejections. However, Amado USPN 5,701,400 column 5, lines 7-31 and column 5, lines 51-57 are cited for teaching the blackboard system comprising a plurality of experts while Lin page 484, section 4.2, page 481, section 3.3, paragraphs 1-2 and page 482, paragraph 1 teach a belief model comprises a set of rules deduced from a learning system. Further, Lin page 484, section 6, paragraph 2 provides avoiding exhaustive enumeration of evidence combination as the purpose and motivation for modifying Amado as taught by Lin.

Applicant(s) argue(s) that Lin Kortge and Alden fail to teach or suggest at least one element of Group II (claim 22) (Appeal Brief VIII. ARGUMENTS, Issue 2, page 9, Group II, paragraph 1): deducing said shadow objects from said belief model (Appeal Brief VIII. ARGUMENTS, Issue 2, page 9, Group II, paragraph 3) and deducing a set of rules from a learning system (Appeal Brief VIII. ARGUMENTS, Issue 2, page 10, Group II, paragraph 3). Applicant's arguments have been fully considered, but are moot in view of the new grounds of rejection given above and the necessary withdrawal of the 35 USC 102(b) and 103(a) rejections. However, Amado column 2, lines 56-66 and column 21, lines 51-55 teach deducing a set of rules from a learning system while Lin p. 482, section 4.1 and p. 480, section 2, paragraph 2 teach deducing said shadow objects from said belief model. Further, Lin page 484, section 6, paragraph 2 provides avoiding exhaustive enumeration of evidence combination as the purpose and motivation for modifying Amado as taught by Lin.

Applicant(s) argue(s) that Lin, Kortge and Alden fail to teach or suggest Issue 2, Group III claim 23 elements similar to those of Issue 1, Groups I-III and Issue 2 Group I-II of Group III as given above (Appeal Brief VIII. ARGUMENTS, Issue 2, page 10, Group III, paragraphs 1-2). Applicant's arguments have been fully considered, but are moot in view of the new grounds of rejection, explanations given earlier and the necessary withdrawal of the 35 USC 102(b) and 103(a) rejections.

As set forth above with regards to Amado, Lin et al and Ng et al, the items listed explicitly and inherently teach each element of the applicants' claimed limitations. Applicants have not set forth any distinction or offered any dispute between the claims of the subject application, Amado's Method and apparatus for applying if-then-else rules to data sets in a relational data base and generating from the results of application of said rules a database of diagnostics linked to said data sets to aid executive analysis of financial data, Lin et al's Dempster-Shafer Reasoning for Medical Image Recognition system and Ng et al's Consensus in a multi-expert system.

Conclusion

The following prior art made of record is considered pertinent to applicant's disclosure:

- *Lee et al;* USPN 5,032,525; Qualitative process automation for autoclave cure of composite parts

- Lynne et al; USPN 5448722; Method and system for data processing system error diagnosis utilizing hierarchical blackboard diagnostic sessions

- Frank et al; USPAP 2002/0083333; Method and system for the secure use of a network serivce

- *von Collani et al*; A general learning approach to multisensor based control using statistic indices; IEEE International Conference on Robotics and Automation, 2000 Proceedings. , Volume: 4 , 24-28 April 2000; pp 3221-3226

Any inquiry concerning this communication or earlier communications from the Office should be directed to Meltin Bell whose telephone number is 571-272-3680. This Examiner can normally be reached on Mon - Fri 7:30 am - 4:00 pm.

If attempts to reach this Examiner by telephone are unsuccessful, his supervisor, Anthony Knight, can be reached on 571-272-3687. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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